

Wow! Signal Decoded as Foundations of Theory of Everything

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Abstract: Here I present a structured extension of the content from the three previous articles in which I described how to read the Wow! signal. There are three different motivated ways to divide the signal. The most important is the division which within the same rule leads to the degrees of freedom of the stable and meta-stable manifolds described in the Scale-Symmetric Theory (SST). The SST manifolds appear at different levels of Nature. Wow! signal leads also to the angles in the neutrino-mixing matrix, to the fine-structure constant, to the asymptote for the coupling constant for the pure strong-weak interactions, or to discoverer of the Planck constant, and so on. All listed elements, especially the SST manifolds, are the foundations of Theory of Everything.

1. Introduction

The Wow! signal was a radio signal received on August 15, 1977, by Ohio State University's Big Ear radio telescope [1]. Most of its operation was in the 21-cm radio band. The receiver covered an 8-MHz bandwidth from 1411 to 1419 MHz.

The string of numbers and characters "6EQUJ5" we see in channel 2 of the printout [1].

The signal-strength sequence "6EQUJ5" in channel 2 of the computer printout represents the following sequence of signal-to-noise ratios [1]:

6 → 6 (up to 7)

E → 14 (up to 15)

Q → 26 (up to 27)

U → 30 (up to 31)

J → 19 (up to 20)

5 → 5 (up to 6)

The intensity received (for example, "E") means that the signal was 14.5 ± 0.5 times stronger than the background noise.

Notice that each element in the signal is defined by two numbers (the lower and upper limit) differing by one.

In the printout, the noise is defined by empty place: we can assume that there is zero:

0 → 0 (up to 1) i.e. noise is from 0 to 1 and is represented by empty place.

In the printout very frequently appears number 1:

1 → 1 (up to 2)

2. The real length of the Wow! signal and the first motivated way to divide the signal

Notice that the two first numbers in the Wow! signal are 6 and 14 (E). Let's check if they can define the true length of the Wow! signal.

The first number 6 defines number of elements in the main part of the Wow! signal. On the other hand, we have $14 = 6 + 8$. This suggests that the signal sender indicates that he also uses eight numbers after the main part of the signal. A sequence of numbers immediately after it is 01100100 [1]. The second part consists of the low-value signal-to-noise ratios.

How we can interpret it?

We can assume that the second part of the string, i.e. the part composed of the zeros and ones, i.e. the part composed of the low-value signal-to-noise ratios: "01100100", shows whether we correctly measured the signal-to-noise ratios for the main part "6EQUJ5". We know that in the binary system, the sequence 01100100 represents number 100. On the other hand, the sum of all numbers in the main part is 100 also

$$6 + E + Q + U + J + 5 \rightarrow 6 + 14 + 26 + 30 + 19 + 5 = 100.$$

It leads to conclusion that measured by the Ohio-State-University team the signal-to-noise ratios for "6EQUJ5" are correct.

3. The second motivated way to divide the signal

The main part consists of 6 elements. Let's create two groups each containing three elements and calculate the sum of numbers.

For "6EU" is

$$6 + E + U \rightarrow 6 + 14 + 30 = 50,$$

and for "QJ5" is

$$Q + J + 5 \rightarrow 26 + 19 + 5 = 50.$$

The sums are the same so such a division is justified.

We can use as well the English alphabet for our numerology analysis:

1 (A), 2 (B), 3 (C), 4 (D), 5 (E), 6 (F), 7 (G), 8 (H), 9 (I), 10 (J), 11 (K), 12 (L), 13 (M), 14 (N), 15 (O), 16 (P), 17 (Q), 18 (R), 19 (S), 20 (T), 21 (U), 22 (V), 23 (W), 24 (X), 25 (Y), 26 (Z).

Calculate the sums:

$$\text{"6EU"} \rightarrow 6 + 5 (E) + 21 (U) = 32,$$

$$\text{"QJ5"} \rightarrow 17 (Q) + 10 (J) + 5 = 32.$$

Such an incredible double coincidence must lead to important information which we will describe in the next paragraph.

4. The degrees of freedom of the SST manifolds in the Wow! signal

According to the Sale-Symmetric Theory (SST), the initial inflation field composed of the non-gravitating, superluminal tachyons transformed into stable and meta-stable manifolds. The SST degrees of freedom are the physical and mathematical quantities which we need to describe shape, location and possible motions of the SST manifolds. The SST manifolds are balls, closed strings/loops, and tori with ball/scalar in their centres [2], [3].

The phase transitions of the SST inflation field show that there are five stable levels of Nature: the SST Higgs field composed of the non-gravitating tachyons (they have 6 degrees of freedom), the spin-1 binary systems of closed strings (entanglons) which are responsible for the quantum entanglement (10 degrees of freedom), the Einstein spacetime composed of the neutrino-antineutrino pairs (26 degrees of freedom), the cores of baryons (58 degrees of freedom) and the Protoworld (122 degrees of freedom) [2] which evolved into the normal and dark matter and “attracted” dark energy [3]. The formula for the degrees of freedom of the five basic/stable SST manifolds of Nature looks as follows

$$N_{1,d} = (\text{absolute value of}) [8 \cdot (2d - 1) + 2], \quad (1)$$

where d are the Titius-Bode numbers: $d = 0, 1, 2, 4, 8$. We obtain respectively 6, 10, 26, 58 and 122.

We can write formula for the degrees of freedom also in following form

$$N_{2,d} = (\text{absolute value of}) [8 \cdot (d - 1) + 2], \quad (2)$$

where d are the Titius-Bode numbers: $d = 0, 1, 2, 4, 8, 16$ [2]. We obtain respectively 6, 2, 10, 26, 58 and 122. Notice that rotational energy has 2 degrees of freedom and such is physical interpretation of the last number 2 in formulae (1) and (2).

Notice that number 10 is characteristic for the string theory (M-theory).

The Wow! signal is a sequence of the signal-to-noise ratios – each element changes its value from n to $(n + 1)$, for example, for 6 is 6 up to 7. It suggests that following formula is very important in deciphering the Wow! signal

$$N = 2 \cdot [n + (n + 1)]. \quad (3)$$

We can use this formula for the $n \rightarrow N$ transition or $N \rightarrow n$ transformation.

For the all elements in the complete Wow! signal, i.e. for 6, E, Q, U, J, 5, 0 and 1, we obtain

$$6 \text{ i.e. } n = 6 \rightarrow N = 2 \cdot (6 + 7) = 26 = N_{2,d=4}$$

$$E \text{ i.e. } n = 14 \rightarrow N = 2 \cdot (14 + 15) = 58 = N_{2,d=8}$$

$$Q \text{ i.e. } n = 26 \rightarrow N = 2 \cdot (26 + 27) = 106 \text{ i.e. } 10 \text{ and } 6 \text{ i.e. } N_{2,d=2} \text{ and } N_{2,d=0}$$

$$U \text{ i.e. } n = 30 \rightarrow N = 2 \cdot (30 + 31) = 122 = N_{2,d=16}$$

$$J \text{ i.e. } n = 19 \rightarrow N = 2 \cdot (19 + 20) = 78$$

$$5 \text{ i.e. } n = 5 \rightarrow N = 2 \cdot (5 + 6) = 22$$

$$0 \text{ i.e. } n = 0 \rightarrow N = 2 \cdot (0 + 1) = 2 = N_{2,d=1}$$

$$1 \text{ i.e. } n = 1 \rightarrow N = 2 \cdot (1 + 2) = 6 = N_{2,d=0}$$

We can see that the degrees of freedom of the SST manifolds are indeed encoded in the Wow! signal.

We can see that the numbers 106, 78 and 22 do not result from formulae (1) and (2). To decode their physical meaning we must describe shortly the SST manifolds.

Consider a rotating and moving ball/tachyon with a grainy structure. It has maximum 6 degrees of freedom: x, y, z for the centre, distance r_i from the centre, spin speed $v_{i,spin}$ at distance r_i and linear speed of a ball as a whole $v_{i,linear}$ – in such a way behave the SST tachyons [2]. The SST tachyons with lower linear speed have bigger radius [2].

Consider a torus. It has maximum 10 degrees of freedom: x, y, z for the centre, two radii r_i and r_j , toroidal speed $v_{i,toroidal}$, poloidal speed $v_{i,poloidal}$, two angular speeds for rotating axis of revolution (for rotating spin) $\omega_{i,spin}$ and $\omega_{j,spin}$ and linear speed $v_{i,linear}$ – in such a way behave a torus or the SST closed strings or binary system of identical closed strings [2]. Notice that a non-rotating-spin binary system of identical tori has 8 degrees of freedom i.e. $10 - 2 = 8$. We can see that the number 2 concerns the pure rotational energies. Notice that the number 2 in formula (1) and (2) (it corresponds to the zeros in the printout i.e. to the noise) concerns the rotation of the spins of the tori in the manifolds. Formula (2) suggests that pure rotation can be separated from inertial mass. But it is not true – just carriers of photons and gluons have infinitesimal mass [2].

Consider a torus with central ball/scalar both composed of non-rotating-spin smaller tori/closed-strings. It has maximum 26 degrees of freedom: 8 for components of the torus, 8 for components of the ball/scalar and 10 for the torus as a whole – in such a way behave the SST neutrinos and binary systems of them i.e. the Einstein-spacetime components [2].

Consider a torus with central ball/scalar both composed of the non-rotating-spin Einstein-spacetime components. It has maximum 58 degrees of freedom: 24 for components of the torus, 24 for components of the ball/scalar and 10 for the torus as a whole – in such a way behave the SST cores of baryons and electrically charged leptons [2].

Consider a torus with central ball/scalar both composed of the non-rotating-spin cores of baryons. It has maximum 122 degrees of freedom: 56 for components of the torus, 56 for components of the ball/scalar and 10 for the torus as a whole – it concerns the SST Protoworld [2], [3].

Emphasize that for the non-rotating-spin tori with central ball/scalar we obtain following degrees of freedom: 24, 56 and 120. Notice that number 24 appears in the Ramanujan modular functions.

We can see that for the rotating-spin stable manifolds (they are stable due to their interactions with the Higgs field and due to the exchanged groups of smaller manifolds) there is valid following formula

$$N_{3,d,maximum} = (\text{absolute value of}) \{ [8 \cdot (d - 1)] + [8 \cdot (d - 1)] + 10 \}, \quad (4)$$

where d are the Titius-Bode numbers: $d = 0, 1, 2, 4, 8$. We obtain respectively 6 (tachyons), 10 (entanglons), 26 (Einstein-spacetime components), 58 (cores of baryons) and 122 (Protoworld).

On the other hand, for the non-rotating-spin stable manifolds we obtain

$$N_{3,d,maximum}^* = (\text{absolute value of}) \{ [8 \cdot (d - 1)] + [8 \cdot (d - 1)] + 8 \}, \quad (5)$$

where d are the Titius-Bode numbers: $d = 1, 2, 4, 8$. We obtain respectively 8 (entanglons), 24 (Einstein-spacetime components), 56 (cores of baryons) and 120 (Protoworld).

Now we can decipher the three meta-stable cosmological manifolds created in the spacetime which are described by the 106, 78 and 22 degrees of freedom deciphered from the Wow! signal. The general formula for a rotating-spin torus (10 degrees of freedom) with a central scalar both composed of the same manifolds, N' , which exchange the same or smaller manifolds, N_{exch} , or which do not exchange manifolds, looks as follows

$$N_{\text{cosmological-manifold}} = \{[N' + N_{\text{exch}}] + [N' + N_{\text{exch}}] + 10\}, \quad (6)$$

For the first meta-stable cosmological manifold created in the SST Higgs field is

$$N_{\text{cosmological-manifold}}(22) = \{[6 + 0] + [6 + 0] + 10\} = \mathbf{22}. \quad (7)$$

It is a “gaseous” torus with central ball/scalar both composed of the SST tachyons. The tachyons interact due to the dynamic viscosity which leads to the most fundamental force.

For the second meta-stable cosmological manifold created in the Einstein spacetime is

$$N_{\text{cosmological-manifold}}(78) = \{[24 + 10] + [24 + 10] + 10\} = \mathbf{78}. \quad (8)$$

It is a torus with central ball/scalar both composed of the non-rotating-spin Einstein-spacetime components which exchange the rotating-spin entanglons (they are responsible for the quantum entanglement).

For the third meta-stable cosmological manifold (it as well is created in the Einstein spacetime) is

$$N_{\text{cosmological-manifold}}(106) = \{[24 + 24] + [24 + 24] + 10\} = \mathbf{106}. \quad (9)$$

It is torus with central ball/scalar both composed of the non-rotating-spin Einstein-spacetime components which exchange the Einstein-spacetime components. It leads to conclusion that in the Einstein spacetime are the spin-0 (scalar) and spin-2 quadrupoles of neutrinos (the SST “gravitons”). The spin-2 SST “gravitons” gravitate, i.e. they have infinitesimal mass, but emphasize that the elementary gravitational fields are the gradients produced in the SST Higgs field by neutrinos – it is due to the coupling of the binary systems of closed strings (entanglons) the neutrinos consist of with the SST Higgs field. The spin-0 quadrupoles of neutrinos, the spin-1 dipoles of neutrinos and the spin-2 “gravitons” all are the components of the Einstein spacetime – the streams in the Einstein spacetime (“the gravitational waves”), produced due to the strong gravitational and other interactions, consist of such objects [4].

When we neglect the superluminal stable manifolds, i.e. the SST tachyons and entanglons, then the SST leads to following sequence for stable manifolds (StaMan):

StaMan: 26, 58, 122

and to following sequence for meta-stable cosmological manifolds (CosMan):

CosMan: 22, 78, 106.

On the other hand, we showed that the numbers in the upper sequence follow from the part “6EU” whereas the numbers in the lower sequence follow from the part “QJ5” so the division to such parts postulated in Paragraph 3 is justified. Notice that sum of the numbers in each sequence is 206 i.e. is the same. The probability of such a strong coincidence as a result of the case is practically equal to zero. It suggests that the Wow! signal was emitted by an Extra-Terrestrial Intelligence (ETI).

By applying formula (3) to the noise (i.e. 0 up to 1) we obtain respectively 2 (rotation) and 6 (the SST tachyons) so the noise we can read as “rotating tachyons” or “the SST Higgs field”.

By applying formula (3) to the ground state above the noise (i.e. 1 up to 2) we obtain respectively 6 (the SST Higgs field) and 10 (the binary systems of the closed strings i.e. the entanglons) so such ground state we can read as “the entanglons interacting with the SST Higgs field” – such interactions produce the elementary gravitational fields [2].

By applying formula (3) to the first element in the Wow! signal (i.e. 6 up to 7) we obtain respectively 26 and 30 so we can read it as “the Q and U elements with the highest values of the signal-to-noise ratios” or as “the nucleus of iron ${}_{26}\text{Fe}^{(26+30)}$ is most stable”.

5. The third motivated way to divide the Wow! signal

Notice that two elements in Wow! signal with highest signal-to-noise ratios, i.e. Q(26) and U(30), are the numbers of protons and neutrons in iron ${}_{26}\text{Fe}^{(26+30)}$ whereas the two lowest ratios, i.e. 5 and 6, are the numbers of protons and neutrons in boron ${}_{5}\text{B}^{(5+6)}$. It forces the division of the Wow! signal into three pairs: QU, EJ and 65. An interpretation of such pairing we described in Paragraph 6.

6. The Wow! signal leads to ratios of the angles in the neutrino-mixing matrix derived within the SST

According to SST, the ratios of the angles in the neutrino-mixing matrix are 4 : 5 : 1 (the SST angles [5] overlap with the intervals defined by experiments [6]).

In Paragraph 5, we showed that an ETI suggests following pairing of the Wow! signal elements: QU, EJ and 65. Differences in the signal-to-noise ratios for the components of the pairs are as follows:

$$U - Q \rightarrow 30 - 26 = 4$$

$$J - E \rightarrow 19 - 14 = 5$$

$$6 - 5 = 1$$

The ratios of the differences in the signal-to-noise ratios are

$$(U - Q) : (J - E) : (6 - 5) = 4 : 5 : 1$$

On the other hand, the PMNS matrix is parameterized by three mixing angles. We can arrange the mixing angles because of the indicators: Θ_{12} , Θ_{23} and Θ_{13} . In the SST, their ratios are [5]

$$\Theta_{12,\text{SST}} : \Theta_{23,\text{SST}} : \Theta_{13,\text{SST}} = 4 : 5 : 1 \text{ (i.e. } 33.0616^\circ : 41.3250^\circ : 8.2654^\circ)$$

The experimental 3σ allowed ranges of the 3-neutrino oscillation parameters, derived from a global fit of the current neutrino oscillation data [6] are collected in Table 1.

It is very important that the Wow! signal leads to the SST results.

Table 1. *Mixing angles from experiments* [6]

Mixing angle	Mixing angles [°]; 3σ ; Normal Ordering [6]
Θ_{12}	31.42 – 36.05
Θ_{23}	40.3 – 51.5
Θ_{13}	8.09 – 8.98

Notice that sum of the indicators is $12 + 23 + 13 = 48$ whereas of the ratios is $4 + 5 + 1 = 10$ but I will decipher it in other paper.

7. The fine-structure constant from the Wow! signal and SST

Here we will show that both the even numbers in the Wow! signal (WowSig) and the StaMan numbers plus the CosMan number 106 lead to the inverse of the fine-structure constant with six significant ciphers i.e. we show that there is a strong coincidence between the inverse of the fine-structure constant $1/\alpha_{em} = 137.036$ and the all 4 even numbers in the Wow! signal and the 7 from the 9 SST numbers defining degrees of freedom of the SST manifolds. The inverse of the fine-structure constant leads to sequence: 1, 3, 7, 0, 3, 6. Using formula (3) two times to each cipher in this sequence, we obtain:

$$1 \rightarrow 2 \cdot (1 + 2) = 6 \text{ (WowSig and StaMan)} \rightarrow 2 \cdot (6 + 7) = 26 \text{ (WowSig and StaMan)}$$

$$3 \rightarrow 2 \cdot (3 + 4) = 14 \text{ (WowSig)} \rightarrow 2 \cdot (14 + 15) = 58 \text{ (StaMan)}$$

$$7 \rightarrow 2 \cdot (7 + 8) = 30 \text{ (WowSig)} \rightarrow 2 \cdot (30 + 31) = 122 \text{ (StaMan)}$$

$$0 \rightarrow 2 \cdot (0 + 1) = 2 \text{ (StaMan)} \rightarrow 2 \cdot (2 + 3) = 10 \text{ (StaMan)}$$

$$3 \rightarrow 2 \cdot (3 + 4) = 14 \text{ (WowSig)} \rightarrow 2 \cdot (14 + 15) = 58 \text{ (StaMan)}$$

$$6 \rightarrow 2 \cdot (6 + 7) = 26 \text{ (WowSig and StaMan)} \rightarrow 2 \cdot (26 + 27) = 106 \text{ (CosMan)}$$

We can see that the two identical transformations of the ciphers in the inverse of the fine-structure constant lead to the 4 even WowSig numbers (6 times; there are 6 WowSig numbers) and to the 7 StaMan+CosMan numbers (9 times; there are 9 SST numbers defining degrees of freedom of the SST manifolds). The probability of such a strong coincidence as a result of the case is very low. It suggests that the Wow! signal was emitted by an Extra-Terrestrial Intelligence (ETI).

Notice as well that the sum of all numbers obtained due to the two transformations is $472 = 8 \cdot (16 + 43)$ but I will decipher it in other paper. The same concerns the sum of all distinguished numbers: $12 \cdot 41 = 492$. Just many events on Earth have been forced by ETI.

8. The strong-weak interactions

Consider the pair “J5”. After the number 5, there is the end of the main part of the Wow! signal so we can add a dot: “J5.”. The reverse order gives: “.5J”. To elements of the signal Wow! we can apply formula (3) without multiplication by 2

$$N^* = [n + (n + 1)]. \quad (10)$$

We obtain

$$5 \text{ i.e. } n = 5 \rightarrow N^* = (5 + 6) = 11$$

$$J \text{ i.e. } n = 19 \rightarrow N^* = (19 + 20) = 39$$

Applying formula (10) to “.5J” we obtain .1139 or 0.1139. The SST shows that when we take into account the pure strong-weak interactions only (i.e. we neglect the weak interactions, especially the production of the Z bosons) then there appears at very high energies an asymptote for the coupling constant for the strong-weak interactions. Value for the asymptote is $\alpha_{\text{strong}}(E \rightarrow \infty) = 0.1139$ [4].

9. The Wow! signal leads to discoverer of the Planck constant

Rank the signal-to-noise ratios from the largest to the smallest

$$U, Q, J, E, 6, 5 \rightarrow 30, 26, 19, 14, 6, 5$$

Let's consider the differences between the signal-to-noise ratios (for ratios arranged from the largest to the smallest)

$$4, 7, 5, 8, 1$$

or (for ratios arranged from the smallest to the largest): 1, 8, 5, 7, 4

The ciphers 4 and 7 lead to $_{19}47$ (date of M. Planck's death).

The ciphers 5 and 8 lead to $_{18}58$ (date of Planck's birth).

The ciphers 1 and 8 lead to $_{19}18$ (date in which the Nobel Prize for quantifying the radiation of a black body was awarded (received in 1919) to Max Karl Ernst Ludwig Planck).

Notice that the first ciphers, i.e. 4, 5 and 1, are the same as the ratios of the neutrino-mixing angles.

The three dates suggest that the Earth is monitored by an ETI.

10. Some distinguished dates

Because of the Planck constant, the year 1900 is the beginning of the quantum revolution in physics. To the elements in the Wow! signal we can apply following formula

$$\text{Year} = 1900 + N^* \text{ (from formula (10))}. \quad (11)$$

We obtain:

6 i.e. $n = 6 \rightarrow \text{Year} = 1900 + (6 + 7) = 1913$ (in this year, the Bohr's theory of atom appeared; the atom-like structures are very important in particle physics and cosmology)

E i.e. $n = 14 \rightarrow \text{Year} = 1900 + (14 + 15) = 1929$ (the Hubble's law for the expanding Universe appeared)

Q i.e. $n = 26 \rightarrow \text{Year} = 1900 + (26 + 27) = 1953$ (Iosif Shklovski is noted for his suggestion that the radiation from the Crab Nebula is due to synchrotron radiation; there is a helium-rich torus – the tori with different sizes appear in the phase transitions of the SST inflation field; we should explain structure of the torus in the Crab Nebula and influence of the supernova explosions on the Earth)

U i.e. $n = 30 \rightarrow \text{Year} = 1900 + (30 + 31) = 1961$ (Yuri Gagarin: First Man in Space)

J i.e. $n = 19 \rightarrow \text{Year} = 1900 + (19 + 20) = 1939$ (1.09.1939: the beginning of the World War II)

5 i.e. $n = 5 \rightarrow \text{Year} = 1900 + (5 + 6) = 1911$ (discovery of the atomic nucleus)

Notice that the year 1953 leads to the Crab Nebula. There is a helium-rich torus with two faint stars in its centre. On the other hand, SST shows that structure of muon is similar – there is torus and two energetic neutrinos in its centre [2].

We can apply to elements in the Wow! signal following formula

$$\text{Year} = 1900 + N \text{ (from formula (3)).} \quad (12)$$

6 i.e. $n = 6 \rightarrow \text{Year} = 1900 + 2 \cdot (6 + 7) = 1926$ (Enrico Fermi and Paul Dirac are developing rules for the behaviour of fermions: the fermion-antifermion pairs)

E i.e. $n = 14 \rightarrow \text{Year} = 1900 + 2 \cdot (14 + 15) = 1958$ (establishment of an institution coordinating American space research: NASA)

Q i.e. $n = 26 \rightarrow \text{Year} = 1900 + 2 \cdot (26 + 27) = 2006$ (NASA's Stardust mission successfully ends, the first to return dust from the comet 81P/Wild (Wild 2) discovered in 1978).

U i.e. $n = 30 \rightarrow \text{Year} = 1900 + 2 \cdot (30 + 31) = 2022$ (? – an abbreviation of it is 222 = 6 + 10 + 26 + 58 + 122 so the date probably will be associated with the stable manifolds)

J i.e. $n = 19 \rightarrow \text{Year} = 1900 + 2 \cdot (19 + 20) = 1978$ (the date of election of Pope John Paul II: 16-10-1978 – we should read it as follows: Religion for an Extra-Terrestrial Intelligence is important)

5 i.e. $n = 5 \rightarrow \text{Year} = 1900 + 2 \cdot (5 + 6) = 1922$ (the Nobel Prize for N. H. D. Bohr – we should read it as follows: In our Cosmos, there dominates the atom-like structure i.e. a core and orbits/shells around it)

11. Why the string theory is both amazing and disappointing?

SST shows that it is true that there are closed strings, the long-range scalar forces and a quintessence (the two-component SST spacetime) postulated in paper [7] so why the string theory is disappointing? It follows from the wrong assumption that the closed strings can vibrate in different ways and we, within the mainstream string theory, cannot from tremendous number of the manifolds select the manifolds realized by Nature. In reality, SST shows that all strings have the same physical properties. Instead the higher spatial dimensions, there is the 4D spacetime with different manifolds defined by the degrees of freedom. All manifolds are built of the identical closed strings coupled with the SST Higgs field. Due to the interactions of the SST manifolds with the SST Higgs field and due to the exchanged smaller manifolds, the manifolds are stable or meta-stable. Such a model leads to very fruitful particle physics and cosmology.

The fundamental coupling, i.e. the coupling of the closed strings with the SST Higgs field, is a result of the dynamic viscosity that follows from smoothness of surfaces of the tachyons and closed strings.

In SST, contrary to the string theory, number of vacuum states is not numerous because it is based on a few properties of the non-gravitating tachyons and on a few symmetries.

12. Summary

Here I present a structured extension of the content from the three previous articles [8], [9], [10] in which I described how to read the Wow! signal.

The 335P/Gibbs comet was proposed as the source of the Wow! signal because the three objects, i.e. the source of the Wow! signal, the 335P/Gibbs and the Tau Sagittarii (the star), were placed near the some direction [11].

The 335P/Gibbs is a comet which will be in perihelion in August 12, 2022 [12] i.e. 45 years after the August 15, 1977 Wow! signal. On the other hand, we showed here that something associated with the signal will happen in 2022 so it means that probably an emitter placed by an Extra-Terrestrial Intelligence (ETI) on the 335P/Gibbs was in 1977 and will be in August 2022 the source of some Wow! signals.

Notice also that

$$1687 \text{ (first edition of the Newton's Principia) } + 335 \text{ (335P/Gibbs) } = 2022$$

Maybe a transmission will concern gravitation?

But why the 1977 Wow! signal was not emitted when 335P/Gibbs was in perihelion (its last orbital period will be 6.77 years [12])? A probable explanation is that an Extra-Terrestrial Intelligence tried to show us the direction to their home i.e. the direction towards the Tau Sagittarii. Probably the ETI can communicate with an apparatus on the 335P/Gibbs comet. Should we send a message towards the comet or land on it to obtain important information concerning science and/or advanced technologies?

The Wow! signal suggests that the mainstream string theory (M-theory) must be radically reformulated. In the string theory, we at first select and describe a shape/vacuum-state for the extra dimensions of spacetime. Each of the shapes corresponds to a different collection of particles and forces. But the applied higher dimensions of spacetime and different vibrations of single string cause that the string theory is disappointing because of tremendous number of possible solutions. On the other hand, in the Scale-Symmetric Theory, the two-component spacetime consists of the SST Higgs field (it consists of the ball-like non-gravitating tachyons) and the Einstein spacetime (it consists of the neutrino-antineutrino pairs). The Einstein-spacetime components consist of the identical closed strings. Due to the dynamic viscosity of the tachyons and closed strings, in the SST spacetime are created stable and meta-stable manifolds. Instead the higher spatial dimensions and vibrations, the SST manifolds differ in number of degrees of freedom. Here we showed that the numbers in the Wow! signal lead to degrees of freedom of the SST manifolds – most of them are tori with ball-like central scalar.

Why the Wow! signal first of all points the phase transitions of the SST inflation field, discoverer of the Planck constant and the neutrinos? According to SST, the Planck constant appeared as the first physical constant at the beginning of the SST inflation [2]. There were created from the components of the inflation field the spin-1 binary systems of closed strings (the entanglons) which are responsible for the quantum entanglement [2]. Next, there appeared neutrinos which are built of the entanglons [2]. Neutrinos are the lightest gravitating objects [2]. Photons and gluons are carried by binary systems of neutrinos whereas all other gravitating particles are built of the binary systems of neutrinos [2] – it is the reason that the

Wow! signal points discoverer of the Planck constant and the neutrinos i.e. points the most fundamental physical constant and the fundamental gravitating particle. But most important in the Theory of Everything are the phase transitions of the SST inflation field so they should be and are encoded in the Wow! signal.

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